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Use of 1,3-propane dione cpds to dye keratin and other fibres, esp human hair - with amino cpds, heterocyclic cpds contg nitrogen or aromatic hydroxy cpds, avoiding use of oxidising agents

C95-071991
Addnl. Data: MOELLER H, HOEFFKES H

A(8-E3, 12-S5N, 12-S5P) D(8-B3, 8-B6) E(25-E) F(3-F2, 3-F3, 3-F4, 3-F5, 3-F6, 3-F7, 3-F9, 3-F10, 3-F16, 3-F21, 3-F22)

1,3-Propane dione cpds. of formula

$$C(O)(R_3)C(R_2)C(O)CR_1 \quad (I)$$

or their acetals or ketals, are used to dye fibres contg. keratin.
R_1, R_2, R_3 = H, 1-4C alkyl, carboxyalkyl or oxoalkyl, 2-4C hydroxyalkyl, furyl, thienyl, pyridyl, or Ph, benzyl or benzoyl (substd. with 1-4C alkyl, alkoxy or alkylamino, amino, OH, NO_2, COOH, sulpho or halogen; or
R_1 and R_3 together form an (un)satd. 5-, 6- or 7-member ring, opt. contg. O, opt. substd. with 1-4C alkyl, Ph, OH, or oxo, and opt. condensed with an aromatic ring system.

USE

The keratin fibres are esp. wool, fur, skins and human hair. Other natural fibres, e.g. cotton, jute, sisal, linen or silk, modified natural fibres, e.g. regenerated cellulose, and nitro-, alkyl-, hydroxyalkyl- or acetyl-cellulose, and synthetic fibres, e.g. polyamide, polyacrylonitrile, polyurethane and polyester fibres, can also be dyed.

ADVANTAGE

The fibres can be dyed in absence of an oxidising agent. When (I) is used with cpds. contg. prim. or sec. amino gps., a heterocycle contg. N, or an aromatic OH cpd., brilliant yellow, brown, green and violet shades, resistant to light, washing and rubbing, are obtd.

PREFERRED COMPOSITION

A compsn. for dyeing keratin fibres, esp. human hair, contains (a) (I), (b) a cpd. with prim. or sec. amino gps., a heterocycle contg. N or an aromatic OH cpd., and (c) an aq. carrier. Esp., the compsn. contains w.r.t. 100g of dye, (a) 0.3-65 (6-20) mmols of (I), and (b) 0.3-65 (6-20) mmols of an aminoacid or an oligopeptide formed from 2-9

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aminoacids, esp. tyrosine, histidine, lysine, phenylalanine, ornithine, DOPA, arginine or tryptophane, or a cpd. contg. an amino gp., a heterocycle contg. N or an aromatic OH cpd.

EXAMPLE

A mixt. of 100 ml of water, 10 mmols of 1,3-indane dione, 10 mmols of Na acetate, 1 drop of a 20% aq. soln. of 'Texapon N25' (RTM) and (i) no additive, or (ii) 10 mmols of p-toluylene diamine H_2SO_4, was heated to the boil, filtered, and brought to pH 6. Untreated human hair, 90% grey, was treated with the compsn. for 30 mins. at 30 °C. The hair was (i) medium to deep copper, or (ii) deep moderate-brown.(SV)
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